



TOWARDS AN EFFICIENT REGULATORY FRAMEWORK FOR SINGLE-USE-PLASTICS IN NIGERIA

Sylvanus Gbendazhi Barnabas¹ 

1. Faculty of Law, Nile University of Nigeria, Abuja-FCT, Nigeria. Email: barnabas.sylvanus@nileuniversity.edu.ng, mailsylvanus@gmail.com

Article Information:

Article Type:

Research Article

Manuscript Received:

18 February 2025

Final Revision Received:

2 July 2025

Published Online:

15 April 2026

Keywords:

single-use-plastics, waste, circular economy, recycling, regulation, Nigeria

Abstract:

Single-use plastics (SUPs) constitutes a critical environmental and regulatory challenge in Nigeria. Although there are few relevant legislations, and policies such as the National Policy on Plastic Waste Management 2020 and the National Policy on Solid Waste Management 2020, there is poor implementation and enforcement. Through a mainly doctrinal analysis, this article examines the challenges of SUPs waste in Nigeria, evaluate the existing regulatory frameworks, highlights international best practices, and proposes strategic reforms rooted in sustainability, and compliance with global environmental standards. As a result of their progress in the effective regulation of SUPs, the paper draws lessons from Sweden, the Netherlands, EU, Rwanda and India. It highlights the importance of banning harmful SUPs, enforcing corporate recycling targets and integrating informal waste collectors into formal sectors. It also proposes key pathways such as establishing plastic recovery hubs, implementing waste-to-energy projects and incentivising eco-friendly products innovations. The role of government, industry and civil society in achieving a sustainable circular economy for SUPs is demonstrated. The findings suggest that a multi-stakeholder approach, supported by strict regulations, financial incentives and behavioural change campaigns, can transform SUPs into economic assets. If effectively implemented, a circular economy model will reduce SUPs pollution, create green jobs and enhance Nigeria's environmental sustainability.

Cite this article: Sylvanus Gbendazhi Barnabas (2026). Towards An Efficient Regulatory Framework For Single-Use-Plastics In Nigeria. Vol. 17:4. 125-159. DOI: 10.4314/jsdlp.v17i4.5.



© The Author(s)

Publisher: Institute for Oil, Energy, Environment and Sustainable Development (OGEES Institute), Afe Babalola University, Ado Ekiti, Nigeria.

1. INTRODUCTION

The pervasiveness of plastic pollution globally has placed developing countries like Nigeria at the forefront of environmental degradation, especially due to the exponential increase in single-use plastics (SUPs).¹ SUPs are plastic products intended to be used once and then discarded, often without proper disposal mechanisms in place.² Despite the increasing global urgency surrounding plastic pollution in general, Nigeria's regulatory response remains inadequate. SUPs waste has emerged as one of the most pressing environmental challenges in Nigeria.³ Let it be clarified early on, that in the context of this paper, the expression 'regulatory framework', covers the entire gamut of constitutional, legislative, and policy provisions relevant in the regulation of SUPs wastes in Nigeria. According to the latest available statistics as at the time of writing, in 2020 the country ranked as the second-largest plastic polluter globally, with 3.5 million tonnes of plastic waste produced, second only to India.⁴ In major cities such as Lagos, Abuja and Port Harcourt, plastic waste constitutes a significant portion of municipal solid waste, with a substantial amount of SUPs ending up in open dumps, drainage systems and water bodies.⁵ The inadequate regulatory framework, coupled with low recycling rates, has exacerbated the general SUPs pollution crisis, necessitating urgent intervention.

Although Nigeria has committed itself to global environmental initiatives, such as the United Nations Sustainable Development Goals (SDGs) and

¹ P Stoett, V M Scrigh, and others, 'Global Plastic Pollution, Sustainable Development, and Plastic Justice' 184 (2024) *World Development* 106756.

² World Bank, *Nigeria: Plastic Waste Management – Brief* (2020) <www.worldbank.org/en/news/feature/2020/08/06/nigeria-plastic-waste-management> accessed 20 April 2025.

³ P A Aidonjio, and others, 'Breaking Legal and Socio-economic Challenges to Plastic Waste Regulation in Nigeria: Lessons Learned from Singapore' 13(1) (2024) *Yustisia* 64.

⁴ Foundation for Investigative Journalism, 'Nigeria Is World's 2nd Biggest Plastic Polluter', 7 October 2020 <<https://fij.ng/article/nigeria-is-worlds-2nd-biggest-plastic-polluter/>> accessed 21 April 2025.

⁵ United Nations Environment Programme (UNEP), *Global Waste Management Outlook* (UNEP 2022) <www.unep.org/resources/report/global-waste-management-outlook> accessed 13 February 2025.

the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal 1989,⁶ the country continues to struggle with effective SUPs waste regulation. It has been claimed that only 20-30% of Nigeria's total waste is collected and managed through formal channels, the majority (70-80%) is dumped in unauthorised sites, water bodies, or burned in open spaces, contributing to air, soil, and marine pollution.⁷ Existing waste disposal systems remain largely linear, characterised by a take-make-dispose model, which contributes to resource depletion and environmental degradation.⁸ A transition towards a circular economy (CE), which is a system that emphasises reducing waste, reusing materials and recycling, can be a viable solution to mitigate these challenges.⁹ However, the integration of CE principles into Nigeria's SUPs regulatory frameworks remains in its infancy, with limited enforcement mechanisms.¹⁰

The challenges associated with SUPs in Nigeria are multi-faceted, ranging from inadequate regulatory frameworks to a lack of public awareness and investment in recycling infrastructure.¹¹ Improper disposal of SUPs leads to urban flooding as plastics generally clog drainage systems, as evident in metropolitan areas like Lagos, Abuja, and Port Harcourt, where blocked drainage systems frequently result in seasonal flooding and displacement of communities.¹² Through a predominantly doctrinal analysis, this article

⁶ Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1989, adopted on 22 March 1989 and entered into force on the ninetieth day after the date of deposit of the twentieth instrument of ratification, acceptance, formal confirmation, approval or accession, on 5 May 1992. <www.basel.int/> accessed 13 February 2025.

⁷ EnviroNews Nigeria, 'Earth Day 2024: Moving Towards a Plastic-Free Nigeria' (EnviroNews, 22 April 2024) <www.environewsnigeria.com/earth-day-2024-moving-towards-a-plastic-free-nigeria/> accessed 21 April 2025.

⁸ E MacArthur Foundation, *The New Plastics Economy: Rethinking the Future of Plastics* (MacArthur Foundation 2016) <https://ellenmacarthurfoundation.org/> accessed 13 February 2025.

⁹ PG Meyer, 'Circular Economy and Plastic Waste Management: A Global Perspective' (2020) 32 *Journal of Environmental Policy* 211.

¹⁰ R A Olabomi, 'Assessment of the Status of Plastic Waste Management and Circular Economy in Nigeria' 3(2) (2024) *Journal of African Innovation and Advanced Studies* 136.

¹¹ *ibid.*

¹² T Adewuyi, 'Flooding in Lagos and the Plastic Link' *The Guardian*, 15 July 2021.

examines the current regulatory and practical state of SUPs regulatory frameworks in Nigeria, through examining some of the main regulatory instruments on SUPs, scrutinising legislative and policy gaps, and enforcement challenges. This paper also explores successful global practices in the context of regulating SUPs in some jurisdictions, as viable examples for Nigeria and proposes a multi-faceted approach to regulating SUPs pollution in Nigeria.

In line with the above objectives, and because of their progress in the effective regulation of plastic wastes generally and SUPs in particular, the paper demonstrates that Nigeria can benefit from regulatory reforms in the EU, Rwanda, Sweden, the Netherlands, and India. It highlights the importance of banning harmful SUPs, enforcing corporate recycling targets and integrating informal waste collectors into formal wastes regulatory framework.

2. SUPS AND THE REGULATORY FRAMEWORK IN NIGERIA

In Nigeria, SUPs include items such as plastic bags, straws, bottles, sachet-water packaging, food wrappers, and cutleries.¹³ These products are lightweight, cheap, and convenient, which explains their extensive use in Nigeria's informal and formal sectors. However, their environmental consequences are devastating. Most SUPs are said to be non-biodegradable, persisting in the environment for up to 400 years.¹⁴ Improper disposal of SUPs leads to urban flooding as plastics clog drainage systems.¹⁵ This is evident in metropolitan areas like Lagos, Abuja, and Port Harcourt, where blocked drainage systems frequently result in seasonal flooding and displacement of communities.¹⁶ Furthermore, SUPs in water bodies degrade into microplastics, infiltrating aquatic ecosystems and ultimately entering the human food chain.¹⁷

¹³ C Chukwuma, 'The Environmental Menace of Plastic Waste in Nigeria' 4(2) 2019) Nigerian Environmental Law Review 76.

¹⁴ *ibid.*

¹⁵ *ibid.*

¹⁶ Adewuyi (n 12).

¹⁷ G Ilechukwu and others, 'Microplastics in Fish Species from Lagos Lagoon' 11(1) (2022) Journal of Environmental Science and Pollution Research 34.

In economic contexts, the World Bank estimates that generally, plastic pollution costs coastal communities millions of dollars in cleanup, health impacts, and tourism revenue loss.¹⁸ In the general context of plastic waste, regulating them through effective regulatory mechanisms in Nigeria remains a significant challenge, as the menace of SUPs waste specifically is exacerbated by rapid urbanisation, population growth and inadequate waste disposal infrastructure.¹⁹ Indeed, according to the latest publicly available data, Nigeria generates approximately 2.5 million tonnes of all categories of plastic wastes (SUPs inclusive) annually, with a significant portion ending up in landfills, drainage systems and water bodies, leading to severe environmental and health consequences.²⁰ As Nigeria generates millions of tonnes in all types of plastic waste annually, this development appears to have made it one of the largest contributors to plastic pollution in Africa.²¹ A significant proportion of this waste is reported to be around 70% which mostly end up in landfills, waterways, or is openly burned, posing severe environmental and health hazards.²² Consequently, in major cities like Lagos, Abuja and Port Harcourt, plastic waste is reported to account for 15-20% of total municipal solid waste.²³ This statistics includes SUPs.²⁴

This situation is compounded by the fact that Nigeria's waste management system is predominantly informal, with thousands of waste pickers and small-scale recyclers playing a crucial role in collecting and processing SUP wastes.²⁵ The Lagos Waste Management Authority (LAWMA) and private recycling companies have implemented various initiatives, such as

¹⁸ World Bank (n 2).

¹⁹ *ibid.*

²⁰ T Ogunbiyi, 'The Impact of Plastic Waste on Nigeria's Environment' (2020) 12(3) Nigerian Journal of Environmental Research 67.

²¹ United Nations Industrial Development Organization (UNIDO), *Plastic Waste Management in Sub-Saharan Africa* (UNIDO 2021) <www.unido.org/plastic-waste-africa> accessed 13 February 2025.

²² UNEP (n 5).

²³ Lagos Waste Management Authority (LAWMA), *State of Waste Management in Lagos* (LAWMA 2020) <www.lawma.gov.ng/> accessed 13 February 2025.

²⁴ *ibid.*

²⁵ *ibid.*

waste buy-back schemes and plastic-to-cash programs, to incentivise plastic waste collection.²⁶ However, nationally, these efforts remain fragmented and lack large-scale government support.²⁷ Furthermore, poor waste segregation at the household level, inefficient collection systems and weak enforcement of existing policies hinder effective plastic waste regulation.

2.1. Regulatory Frameworks

Nigeria's regulatory frameworks on SUPs encompasses several federal and state legislations, and national policy instruments, as well as international environmental instruments. However, it must be noted that an analysis of all instruments that may be relevant to the regulation of SUPs in Nigeria is beyond the scope of this paper.²⁸ With the scope of this paper in mind, some of the relevant regulatory instruments are examined below.

2.1.1. Federal Regulatory Framework

The Nigerian Constitution,²⁹ as the supreme legal instrument in Nigeria is the starting point. Under section 20 of the Nigerian Constitution, the government is expressly mandated to ensure the protection of the environment through preserving the nation's water, land, air, wildlife and forests. Although, that section comes under chapter 2 of the Constitution which is non-justiciable, the National Assembly can rely on that section in combination with the powers granted to it under section 4 of the Constitution, to enact legislation(s) specifically on the regulation of SUPs in Nigeria, as part of fulfilling the fundamental objectives and directive principles of state policy in relation to the nation's environmental protection obligations under section 20. The same argument applies to any

²⁶ Wecyclers, *Plastic Waste Recycling in Nigeria* (Wecyclers 2022) <www.wecyclers.com/> accessed 13 February 2025.

²⁷ *ibid.*

²⁸ For a comprehensive lists of relevant national regulations, see Federal Ministry of Environment, *National Policy on Plastic Waste Management* 2020 para 1.2., <<https://faolex.fao.org/docs/pdf/nig214338.pdf>> accessed 3 May 2025.

²⁹ Constitution of the Federal Republic of Nigeria, 1999.

state House of Assembly, as per section 4(7)(a) of the Nigerian Constitution.

Following the Nigerian Constitution, the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007 (NESREA Act) is the primary environmental regulatory instrument but does not explicitly regulate SUPs.³⁰ While the NESREA Act among many other federal legislations, contain provisions related to waste regulation generally, enforcement remains weak and there is poor compliance by industries.³¹ The NESREA Act establishes the National Environmental Standards and Regulations Enforcement Agency (NESREA) and imposes on it the responsibility ‘for the protection and development of the environment’ and empowers it to cooperate with both local and international stakeholders ‘on matters of enforcement of environmental standards, regulations, rules, laws, policies and guidelines.’³² Thus, NESREA Act imposes a responsibility on NESREA to regulate SUPs waste in Nigeria including the powers to enforce any relevant regulatory instrument targeted at addressing the challenges of SUPs in Nigeria.³³

Indeed, section 8(o) of the NESREA Act empowers NESREA to set ‘standards and regulations for the prevention, reduction and elimination of pollution and other forms of environmental degradation in the nation’s air, land, oceans, seas and other water bodies and for restoration and enhancement of the nation’s environment and natural resources.’ It is therefore the responsibility of NESREA to reduce and possibly eliminate SUPs pollution in the air, oceans, land, water bodies, and seas in Nigeria. Following the powers granted to it by section 25 of the NESREA Act, it has issued various environmental regulations, including the National

³⁰ NESREA Act 2007.

³¹ European Commission (EC), *Circular Economy Action Plan for a Cleaner and More Competitive Europe* (EC, 2020) <https://ec.europa.eu/environment/circular-economy/> accessed 13 February 2025.

³² NESREA Act s 2. See also ss 7 and 8.

³³ M T Ladan, ‘Review of NESREA Act 2007 and Regulations 2009-2011: A New Dawn in Environmental Compliance and Enforcement in Nigeria’ (2012) 8(1) *Law, Environment and Development Journal* 116 <<http://www.lead-journal.org/content/12116.pdf>> accessed 1 May 2025.

Environmental (Sanitation and Waste Control) Regulations 2009,³⁴ which addresses general solid waste management, but fails to expressly isolate or restrict the use of SUPs in Nigeria.

Additionally, NESREA has the obligation under section 7(c) of the NESREA Act to enforce within the Nigerian jurisdiction any international instrument ‘on the environment, including climate change, biodiversity, conservation, desertification, forestry, oil and gas, chemicals, hazardous wastes, ozone depletion, marine and wild life, pollution, sanitation and such other environmental agreements as may from time to time come into force’.³⁵ To this extent, it is argued that this section enables the implementation of all relevant international instruments related to SUPs in Nigeria by NESREA, so long as Nigeria has signed and ratified such.³⁶ Examples of such international instruments are the Basel Convention on the Control of the Transboundary Movement of Hazardous Wastes and their Disposal 1989 and the Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Waste within Africa 1991.³⁷ Thus, NESREA can rely on the provisions of such international instruments in regulating the menace of SUPs in Nigeria.

Another relevant law is the Harmful Waste (Special Criminal Provisions etc.,) Act³⁸ which deals with issues pertaining to harmful wastes materials such as SUPs that causes harmful environmental pollution in Nigeria. Although it does not expressly mention SUPs, however, it does contain provisions on regulation of the production, use, transportation and indiscriminate disposal of some types of plastic bags. For example, section 1 of the Act provides punitive measures for irresponsible disposal of waste that is dangerous, and this can be interpreted to include dangerous SUP bags. Additionally, sections 2-8 of the Act provide that any means of conveying such wastes as well as any land where such is deposited shall be

³⁴ National Environmental (Sanitation and Waste Control) Regulations 2009, S.I. No. 28, 2009.

³⁵ The emphasis is added.

³⁶ Ladan (n 33) 123.

³⁷ *ibid* 124.

³⁸ Harmful Waste (Special Criminal Provisions) Act CAP HI LFN 2004.

confiscated by the government. Section 6 prescribes civil liability on any person responsible for the disposal of such wastes within the jurisdiction of Nigeria. Regulatory agencies have powers under it to prosecute offenders as well ensure the enforceability of offenders.³⁹ Thus this Act can be used by relevant agencies in regulating hazardous SUP bags in Nigeria.⁴⁰

The only National Assembly's attempt as at the time of writing, aimed directly at adopting an Act specifically targeting SUPs is the Plastic Bags (Prohibition) Bill 2018 which sought to ban the manufacture, importation, and use of plastic bags below 30 microns in thickness. generally, this Bill passed its second reading in the House of Representatives it would appear that it has since stalled in the legislative process.⁴¹ However, fairly recently there has been a nationwide ban on SUPs in all federal government owned facilities, departments, ministries, and agencies with effect from August 2024,⁴² which took full effect by January 2025 generally in the whole of Nigeria, and in accordance with the objectives of the National Policy on Plastic Waste Management (NPPWM) enacted in 2020.⁴³

Among the many policy objectives of the NPPW is those aimed at limiting 'the impact of littering of certain single use on the go plastic packaging product and waste materials in the Nigerian environment',⁴⁴ to 'phase out Single-Use on the go Plastic Bags and Styrofoam (Micron > 30µ) effectively by December 2028',⁴⁵ to 'effect levy and sector user charges on Single Use on the go Plastic under the Extended Producer Responsibility

³⁹ Ibid s 6.

⁴⁰ F F Aare, and others, 'Strategic Management of Plastic Pollution in Nigeria: Balancing Best Approaches' (2024) 4(1) International Journal of Civil Law and Legal Research 5.

⁴¹ Plastic Bags (Prohibition) Bill 2018 (HB.1021).

⁴² Office of the Secretary to the Government of the Federation, Circular: Ban on the Use of Single Plastics (SUPs) in all Federal Government Owned Facilities and by Ministries, Departments and Agencies (MDAs), 27 August 2024 < <https://www.osgf.gov.ng/wp-content/uploads/2024/09/Ban-on-the-use-of-single-use-plastics-SUPs-in-all-Federal-Government-owned-facilities-and-by-MinistriesDepartments-and-Agencies-MDAs.pdf>> accessed 14 April 2025.

⁴³ Federal Ministry of Environment, *National Policy on Plastic Waste Management* (Federal Ministry of Environment, 2020), paras 2.3 and 2.4.

⁴⁴ *ibid* para 2.3.

⁴⁵ *ibid*.

effectively from May 2021’,⁴⁶ to ‘ban four categories of single use on the go plastic such as plastic bags, cutlery, Styrofoam, Straws effectively from January 2025.’⁴⁷ In addition to the afore-mentioned goals, others include the goals of promoting ‘the sustainable use of alternatives to single use plastics e.g. Jute bags, leaves, paper glass bottles etc from May 2020’⁴⁸ as well as to generally transform ‘all plastic products, packaging materials and its waste to a resource’⁴⁹ and ensuring that by 2030 ‘all plastic packaging in the market meet at least two criterion of being recyclable or biodegradable or compostable or reusable’.⁵⁰ In managing plastic wastes generally in Nigeria, amongst several principles of environmental law, the NPPW proclaims that it shall be guided by the principles of ‘Circular Plastic Economy’,⁵¹ ‘The Extended Producer Responsibility (EPR)’⁵² and the ‘Polluter Pays Principle’.⁵³

Recognising the executive, legislature and judiciary at federal and state levels as relevant institutions in the implementation of the lofty ideals contained in the NPPWM,⁵⁴ the Policy then recognises the Federal Ministry of Environment as the highest body to articulate the policy regulations and guidelines adumbrated in the above NPPW context,⁵⁵ through the National Steering Committee on Plastic Waste Management (NSCPWM).⁵⁶ It is important to note that the NPPW also recognises the private sector, generators of plastic wastes, producers, civil society organisations, the public, international organisations, households, and research institutes as relevant stakeholders in achieving the goals set out under it.⁵⁷ However, both the NPPW and the 2024 federal government

⁴⁶ *ibid.*

⁴⁷ *ibid.*

⁴⁸ *ibid.*

⁴⁹ *ibid.*

⁵⁰ *ibid.*

⁵¹ *ibid* para 2.5(ii).

⁵² *ibid* para 2.5(iv).

⁵³ *ibid* para 2.5(vii).

⁵⁴ *ibid* para 4.2.

⁵⁵ *ibid* para 4.2.3.

⁵⁶ *ibid* paras 4.3.1–4.3.7.

⁵⁷ *ibid* paras 4.6.11–4.6.19.

‘circular’ mentioned earlier expressly banning the use of SUPs in Nigeria are not legally binding instruments.

2.1.2. State Regulatory Framework

The Federal Republic of Nigeria is comprised of thirty-six states and the Federal Capital Territory (FCT). The Nigerian Constitution empowers each of the states’ Houses of Assembly to make laws for the good governance of each of these states, while the National Assembly legislates for the FCT. However, for its relative progress in comparison with other states in Nigeria, in the context of regulating SUPs, Lagos State shall be the focus of this paper. In January 2024, the Lagos State Government announced an immediate ban on the usage and distribution of Styrofoam and other SUPs.⁵⁸ The ban is enforced by the Lagos State Waste Management Authority (LAWMA) and the Kick Against Indiscipline (KAI) task force.⁵⁹ This ban is supported by several existing regulations to wit: the National Environmental (Sanitation and Waste Control) Regulations 2009, established under the NESREA Act, prohibiting and regulating the use of certain SUPs across Nigeria;⁶⁰ and the Lagos State Environmental Management and Protection Law 2017,⁶¹ particularly section 56(1)(y), which empowers the state to prevent or stop activities likely to cause environmental harm.

The ban targets the following SUP items identified as major contributors to environmental pollution: Styrofoam food containers; plastic bags; plastic straws; plastic cutlery; and sachet water packaging.⁶² Enforcement measures include clamping down on production and distribution centres; sealing premises of violators; and imposing fines and requiring polluters

⁵⁸ LAWMA, ‘Lagos Announces Ban on Usage of Styrofoam and Other Single Use Plastics’ (LAWMA, 21 January 2024) <https://lawma.gov.ng/press-releaselagos-announces-ban-on-usage-of-styro-foams-and-other-single-use-plastics> accessed 3 May 2025.

⁵⁹ *ibid.*

⁶⁰ National Environmental (Sanitation and Waste Control) Regulations 2009, S.1. No. 28 of 2009.

⁶¹ Lagos State Environmental Management and Protection Law 2017, s 56(1)(y).

⁶² EcoBarter, ‘Lagos State’s Single Use Plastic Ban: What It Means for Residents’ (EcoBarter, 26 January 2024) <https://ecobarter.africa/lagos-states-single-use-plastic-ban-what-it-means-for-residents> accessed 3 May 2025.

to bear the cost of cleaning up their products from public areas.⁶³ However, it has been reported that these initiatives lack consistent enforcement and implementation.⁶⁴

In addition, Nigeria's informal waste sector still plays a crucial role in SUPs collection and recycling, but lacks government recognition and support at both federal and state levels, limiting regulatory impacts on large-scale SUPs waste recovery.⁶⁵ Institutionally, it has been argued that overlapping mandates between agencies such as NESREA, the Federal Ministry of Environment, and state environmental protection agencies create jurisdictional confusion and regulatory redundancy.⁶⁶ Additionally, enforcement is hindered by lack of funding, manpower, and political will.

Furthermore, the LAWMA and other state agencies have implemented various initiatives, including EPR schemes and public-private partnerships, to enhance waste collection and recycling.⁶⁷ However, enforcement remains weak due to poor governance, lack of funding and low public awareness.⁶⁸ Even though informal waste pickers play a crucial role in plastic recycling in Nigeria, their contributions are often overlooked by authorities.⁶⁹ To address these challenges, Nigeria must strengthen its regulatory frameworks, invest in modern recycling facilities and promote behavioural change through education and incentives for

⁶³ LAWMA (n 58).

⁶⁴ E Akinwotu, 'Single-use Plastic Banned in Nigeria – but Is the Country Ready?' *The Guardian* (London, 24 December 2024) <www.theguardian.com/world/2024/dec/24/single-use-plastic-banned-nigeria-is-country-ready> accessed 3 May 2025.

⁶⁵ I Onungwe, D V L Hunt, and I Jefferson, 'Transition and Implementation of Circular Economy in Municipal Solid Waste Management System in Nigeria: A Systematic Review of the Literature' 15(16) (2023) *Sustainability* 12602.

⁶⁶ Okonkwo I and Adejumo F, 'Challenges of Environmental Regulation in Nigeria' (2020) 12(2) *African Journal of Law and Environment* 103.

⁶⁷ LAWMA, *Annual Report on Waste Management Strategies in Lagos* (LAWMA 2021) <www.lawma.gov.ng/report2021> accessed 14 February 2025.

⁶⁸ C Eze, 'Challenges of Plastic Waste Management in Nigeria: Policy Gaps and Opportunities' (2019) 7(2) *Journal of Sustainable Development* 112.

⁶⁹ O Adeyemi, 'The Role of Informal Sector in Plastic Waste Recycling in Nigeria' (2022) 18(4) *African Journal of Environmental Studies* 45.

sustainable waste disposal practices.⁷⁰ Moreover, fostering collaboration among government agencies, private sector players and civil society organisations is essential for effective plastic waste management and environmental sustainability in Nigeria.⁷¹ These suggestions will be examined more elaborately later in this paper.⁷²

2.1.3. International Regulatory Framework

Nigeria is a signatory to several international environmental treaties, including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1989, which has been amended to include certain plastic wastes under controlled movement, as well as the Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Waste within Africa 1991. In addition, Nigeria is also participating in the UN Environment Programme's Intergovernmental Negotiating Committee on Plastic Pollution, which aims to establish a global, legally binding instrument by 2025.⁷³ However, despite these commitments, Nigeria's domestic legal system does not fully integrate these obligations, through legally binding national instruments specifically targeting SUPs. The dualist nature of Nigerian law requires international treaties to be domesticated through national legislation before they can be enforced in national courts.⁷⁴ Thus, Nigeria must take deliberate steps to incorporate international plastic governance into its domestic regulatory framework to address the challenges posed by SUPs.

⁷⁰ M Uche, 'Policy Interventions for Sustainable Plastic Waste Management in Nigeria' (2021) 5(6) *West African Journal of Environmental Policy* 134.

⁷¹ K Obi, 'Government-Private Sector Collaboration in Waste Management: A Case Study of Nigeria' (2020) 10(1) *Journal of Environmental Policy and Law* 89.

⁷² See sections 3, 4 and 5 below.

⁷³ UNEP, *Intergovernmental Negotiating Committee on Plastic Pollution* (UNEP, 2023).

⁷⁴ Constitution of the Federal Republic of Nigeria 1999, s 12. See also S G Barnabas, and D O Okanyi, 'The Interface Between National and International Law in Africa: Nigeria and Kenya in Comparative Perspective' (2021) 1 *Africa Journal of Comparative Constitutional Law* 41.

2.1.4. Private Sector Regulatory Framework

There certainly has been some public sector initiatives that have been launched in Nigeria to address plastic waste (SUPs inclusive) pollution such as those by NESREA and LAWMA highlighted above. However, there are also private sector stakeholders' initiatives like Wecyclers and Recycle Points,⁷⁵ which involve private companies incentivising household waste recycling through waste-for-cash programs;⁷⁶ NESREA's EPR programme, which is a regulatory approach to hold manufacturers accountable for plastic waste;⁷⁷ and public-private partnerships (PPPs), as companies like Coca-Cola, Nestlé and Unilever Nigeria have introduced plastic recovery programs in collaboration with NGOs.⁷⁸ However, despite these efforts by both public and private sector actors in Nigeria, the impacts remain limited due to the challenges highlighted below.

2.2. Challenges of Effectively Regulating SUPs in Nigeria

Generally, plastic waste regulation remains a significant environmental challenge in Nigeria.⁷⁹ The increasing use of plastic materials, coupled with inadequate waste disposal infrastructure, has led to severe environmental and public health consequences.⁸⁰ In particular, regulating SUPs waste in Nigeria presents significant challenges due to inadequate waste management infrastructure, low recycling rates, poor public awareness and weak enforcement of environmental laws and regulations.⁸¹

⁷⁵ Wecyclers, 'Recyclables Drop Off (Wecyclers Recycling Exchange - WREX)' <<https://wecyclers.com/services/wrex/>> accessed 3 May 2025.

⁷⁶ *ibid.*

⁷⁷ NESREA, 'Extended Producer Responsibility Programme is a must' <<https://nesrea.gov.ng/extended-producer-responsibility-programme-is-a-must/>> accessed 3 May 2025.

⁷⁸ Coca-Cola Nigeria, 'Sustainable Packaging Initiatives' (2023) <www.coca-cola.ng/> accessed 13 February 2025.

⁷⁹ E Dumbili and L Henderson, 'The Challenge of Plastic Pollution in Nigeria' in T M Letcher (ed), *Plastic Waste and Recycling* (Elsevier Academic Press 2020) 569-583.

⁸⁰ *ibid.*

⁸¹ OA Ebhaleme, 'Regulating Single-Use Plastic Marine Pollution: A Case Study of Nigeria' (MPhil dissertation, World Maritime University, Malmo, Sweden, 2022).

Rapid urbanisation and population growth have led to increased plastic consumption, overwhelming the existing waste disposal systems.⁸² Many plastics end up in open dumps, waterways and streets, causing environmental and health hazards.⁸³ The lack of incentives for recycling and limited investment in waste management technologies further exacerbate the problem.⁸⁴ Addressing these challenges requires stronger policies, improved waste collection systems and increased public engagement in sustainable waste practices. This sub-section explores in a bit more details specific major challenges in regulating the use of SUPs in Nigeria, focusing on inadequate waste management infrastructure, weak regulatory frameworks, low public awareness and economic constraints.

2.2.1. Infrastructural Challenges

One of the major barriers to effective plastic waste regulation in Nigeria is insufficient infrastructure for waste collection, sorting and recycling.⁸⁵ The country has only a few operational recycling plants, with most SUPs waste being handled by the informal sector.⁸⁶ Many disposal sites are poorly managed, unregulated and often serve as open dumps, leading to environmental contamination.⁸⁷ The absence of well-structured landfills and recycling plants further exacerbates the problem, resulting in environmental pollution and flooding during the rainy season.⁸⁸ Studies indicate that less than 10% of Nigeria's plastic waste is recycled, highlighting the inefficiency of existing waste management systems.⁸⁹

⁸² A Embrandiri and others, 'The Menace of Single Use Plastics: Management and Challenges in the African Context' (2022) *Waste Management, Processing and Valorisation*.

⁸³ *ibid.*

⁸⁴ *ibid.*

⁸⁵ R U Duru, E E Ikpeama, and J A Ibekwe, 'Challenges and Prospects of Plastic Waste Management in Nigeria' (2019) 1 *Waste Disposal & Sustainable Energy* 117-126.

⁸⁶ AO Afon, 'Informal Sector Initiative in the Primary Sub-System of Urban Solid Waste Management in Lagos, Nigeria' (2007) 31(2) *Habitat International* 193.

⁸⁷ O O Ayeleru and others, 'Challenges of Plastic Waste Generation and Management in Sub-Saharan Africa: A Review' (2020) 110 *Waste Management* 24.

⁸⁸ *ibid.*

⁸⁹ I C Nnorom and O Osibanjo, 'Overview of Electronic Waste (E-Waste) Management Practices and Legislations, and Their Poor Applications in the Developing Countries' (2008) 9 *Resources, Conservation and Recycling* 147.

Additionally, waste-to-energy technology, which has been successfully implemented in countries like Sweden and Germany, remains underdeveloped in Nigeria.⁹⁰

2.2.2. Inadequate and Weak Regulatory Framework

There is the problem of legislative inertia at federal and state levels, as Bills related to plastic control often fail to progress due to competing legislative priorities and lack of political consensus.⁹¹ An example, is the Plastic Bags (Prohibition) Bill 2018, which has remained stalled in the National Assembly.⁹² However, even where laws exist, enforcement is minimal due to limited institutional capacity, corruption, and weak judicial mechanisms.⁹³ Nigeria has some regulatory instruments aimed at waste regulation generally, including the NESREA Act, other related legislations, NESREA regulations, the NPPWM and the National Policy on Solid Waste Management (NPSWM).⁹⁴ However, weak enforcement of these laws and regulations remains a significant challenge.⁹⁵ Corruption, lack of political will, and limited resources hinder the effective implementation of these regulatory instruments. There is also no specific and stand-alone national legislation regulating or prohibiting the use of SUPs in Nigeria, as at the time of writing.

Additionally, there is an absence of stringent penalties for illegal SUPs waste disposal, leading to continued environmental degradation.⁹⁶ Consequently, many industries continue to produce and distribute SUPs without consequences due to a lack of stringent penalties. Furthermore,

⁹⁰ B I Njar and D A Enagu, 'Development and Environmental Sustainability in Nigeria: An African Perspective' (2019) 2(1) GNOSI: An Interdisciplinary Journal of Human Theory and Praxis 37.

⁹¹ N Eze and M Bello, 'Towards Extended Producer Responsibility in Nigeria: Legal and Policy Considerations' (2023) 9(1) Nigerian Law and Environmental Review 89.

⁹² See section 2.1 above.

⁹³ I Okonkwo and F Adejumo, 'Challenges of Environmental Regulation in Nigeria' (2020) 12(2) African Journal of Law and Environment 103.

⁹⁴ See Federal Ministry of Environment (n 28).

⁹⁵ Aare and others (n 40).

⁹⁶ Organization for Economic Co-operation and Development (OECD), *Extended Producer Responsibility: A Guidance Manual for Governments* (OECD 2016).

Nigeria's federal system of government which encompasses three tiers of government, leads to a situation where there is no uniform national regulatory regime on SUPs waste collection and segregation - a situation that creates a fragmented regulatory regime between federal, state and local governments.⁹⁷

2.2.3. Public Awareness and Behavioural Barriers

Public awareness regarding the dangers of SUPs waste and the benefit of recycling is relatively low in Nigeria. Many citizens lack knowledge about proper waste disposal methods and the environmental consequences of plastic pollution generally.⁹⁸ Furthermore, cultural attitudes and behaviours towards SUPs waste regulation remain a barrier to effective plastic waste control.⁹⁹ Public education campaigns on waste management are insufficient, making it difficult to change people's habits and attitudes towards SUPs usage and disposal.¹⁰⁰

The level of public awareness and participation in SUPs waste management is low, particularly in rural and semi-urban areas.¹⁰¹ Many Nigerians lack knowledge on waste segregation, recycling processes and the environmental impact of SUPs pollution.¹⁰² Additionally, the absence of incentives for households to engage in waste sorting discourages participation in formal waste collection programs.¹⁰³

2.2.4. Economic Factors and Market Limitations

Another major challenge is the economic constraint in funding waste management initiatives. The Nigerian government allocates limited

⁹⁷ Aare and others (n 40).

⁹⁸ P A Aidonjioje and others, 'Breaking Legal and Socio-economic Challenges to Plastic Waste Regulation in Nigeria: Lessons learned from Singapore' (2024) 13(1) Yustisia 64.

⁹⁹ *ibid.*

¹⁰⁰ S O Ogu, 'Private Sector Participation and Municipal Waste Management in Benin City, Nigeria' (2000) 55 *Habitat International* 41.

¹⁰¹ *ibid.*

¹⁰² C Eze, 'Public Awareness and Plastic Waste Management in Nigeria' (2021) 45 *African Journal of Environmental Studies* 119.

¹⁰³ *ibid.*

financial resources to waste management and private sector investment in recycling initiatives remains low.¹⁰⁴ Additionally, there are few incentives for businesses and individuals to engage in plastic recycling.¹⁰⁵ The lack of a well-developed market for recycled SUPs materials discourages investors from entering the recycling industry.¹⁰⁶ Consequently, SUPs waste continues to accumulate without adequate means of processing and repurposing.

In another economic context, many small and medium enterprises rely on plastic packaging due to its affordability and availability, and without viable alternatives or incentives, regulatory enforcement may hurt economic livelihoods.¹⁰⁷ In addition, recycling businesses in Nigeria face several economic challenges, including: high operational costs due to lack of modern technology; limited financial support from government and private investors; and fluctuating demand for recycled SUPs products, making profitability unpredictable.¹⁰⁸ Thus, despite the growing global market for recycled plastics, Nigeria struggles to develop a sustainable SUPs CE due to poor policy incentives, lack of funding and inadequate research and development (R&D) in sustainable materials.¹⁰⁹

2.2.5. Environmental and Health Risks

Poor SUPs waste regulation and management has severe environmental and health consequences in Nigeria.¹¹⁰ The indiscriminate disposal of plastic waste contributes to: flooding, as SUPs clog drainage systems

¹⁰⁴ FA Adewumi and AO Oyekanmi, 'Plastic Waste Management and Prospects of Circular Economy in Nigeria' (2021) 32 *Environmental Science and Policy* 223.

¹⁰⁵ *ibid.*

¹⁰⁶ *ibid.*

¹⁰⁷ C Chukwuma, 'The Environmental Menace of Plastic Waste in Nigeria' (2019) 4(2) *Nigerian Environmental Law Review* 76.

¹⁰⁸ K Chintan, 'Extended Producer Responsibility and the Future of Plastic Waste Management' (2022) 50 *Environmental Research Letters* 340.

¹⁰⁹ Chukwuma (n 108).

¹¹⁰ G A Idowu and others, 'Why Nigeria Should Ban Single-Use Plastics: Excessive Microplastic Pollution of the Water, Sediments and Fish Species in Osun River, Nigeria' (2024) 13 *Journal of Hazardous Materials Advances* 100409.

(especially in Lagos);¹¹¹ soil and water contamination, as plastic waste releases hazardous chemicals into the environment; and air pollution, from burning plastics in open dumps, releasing toxins such as dioxins and furans, which are linked to respiratory diseases and cancer.¹¹²

The combined implications of the afore-mentioned challenges of lack of adequate and weak regulatory framework; inadequate waste management infrastructure, low public awareness, and economic constraints, suggests that Nigeria needs to imbibe certain viable regulatory strategies and frameworks. This can be achieved through drawing lessons and examples from other countries across the world that have encountered similar challenges and have responded to such challenges successfully as illustrated further sections 3, 4 and 5 below.

3. EFFECTIVE REGULATORY FRAMEWORKS FOR NIGERIA

Against the background of the challenges to effectively regulating SUPs in Nigeria, multi-regulatory approaches are needed. Several frameworks have been developed to explain SUPs waste regulatory systems and their transition towards circularity. This section explores the most relevant frameworks applicable to Nigeria, focusing on Integrated Sustainable Waste Management (ISWM), CE and EPR. These conceptual ideas, although mentioned in passing in a few regulatory instruments, have never been implemented in any serious way in the context of regulating the use of SUPs in Nigeria. However, it will be demonstrated below, that they provide a foundation for understanding the barriers and opportunities for effective SUPs waste regulation in Nigeria.

¹¹¹ Nigeria Hydrological Services Agency (NIHSA), *Flood Risk Management in Lagos* (NIHSA 2021) <www.nihsa.gov.ng/> accessed 13 February 2025.

¹¹² World Health Organization (WHO), *Health Effects of Plastic Pollution* (WHO, 2021) <www.who.int/publications/i/item/health-effects-of-plastic-pollution> accessed 13 February 2025.

3.1. *Integrated Sustainable Waste Management (ISWM) Framework*

The ISWM framework provides a holistic approach to waste management by incorporating environmental, socio-economic and institutional dimensions.¹¹³ Unlike traditional waste disposal regulation frameworks that prioritise collection and disposal, ISWM promotes waste prevention, resource recovery and sustainable waste governance.¹¹⁴ In the Nigerian context, ISWM is critical due to the fragmented waste management system, weak institutional enforcement and heavy reliance on the informal sector.¹¹⁵ The model emphasises the need for multi-stakeholder collaboration, involving government agencies, private sector players, local communities and waste pickers, in designing a sustainable waste regulation systems.

In this ISWM context, Nigerian can learn from India's integration of its informal waste sector into its CE regulatory framework. Like Nigeria, India faces SUPs waste challenges, including rapid urbanisation, high plastic consumption and an informal waste sector.¹¹⁶ Some of the key strategies in India's overall plastic waste regulation system worth emphasising include: the formalisation of informal waste pickers, through initiatives such as the Solid Waste Collection and Handling (SWaCH) in Pune, that provide waste pickers with official recognition, protective gear and fair wages;¹¹⁷ India's Plastic Credit System, creates mandatory obligation on manufacturers to purchase credits from waste collection organisations to meet their EPR obligations;¹¹⁸ and the Plastic-to-Fuel

¹¹³ DC Wilson, 'Integrated Sustainable Waste Management in Developing Countries' (2015) 36 *Waste Management & Research* 150.

¹¹⁴ *ibid.*

¹¹⁵ OS Abiodun and OA Babarinde, 'Challenges and Opportunities in Nigeria's Waste Management System' (2021) 44 *Journal of African Environmental Policy* 97.

¹¹⁶ A Rafey and F Z Siddiqui, 'A Review of Plastic Waste Management in India – Challenges and Opportunities' (2021) 103(16) *International Journal of Environmental Analytical Chemistry* 3971.

¹¹⁷ SWaCH, *Waste Picker Inclusion in India* (SWaCH 2021).

¹¹⁸ K Chintan, 'EPR and the Future of Plastic Waste Management' (2022) 50 *Environmental Research Letters* 340.

Projects, is helping to convert plastic wastes into alternative fuels for energy generation.¹¹⁹

There are several significant lessons Nigeria can learn from India, such as recognising and supporting informal waste pickers, since Nigeria's waste sector is largely informal, the Nigerian governments at federal, state and local levels should introduce policies to integrate waste pickers into formal recycling programs. Nigeria also needs to start incentivising recycling through EPR credits, by adopting India's Plastic Credit System as this can encourage corporate investment in waste collection and recycling. Also, by investing in waste-to-energy projects, through the development of plastic-to-fuel technologies Nigeria can provide alternative energy sources while reducing SUPs waste. ISWM is particularly relevant to Nigeria, where plastic waste is often mismanaged due to poor infrastructure, open dumping and ineffective recycling programs.¹²⁰ In India, ISWM plays a crucial role in addressing the regulatory challenges posed by SUPs. Through stakeholder inclusivity, ISWM in India encompasses a broad range of stakeholders such as government bodies, private enterprises, and NGOs. This kind of inclusivity has proved essential for addressing the environmental challenges of SUPs.¹²¹

Through a waste stream regulation strategy, which focuses on managing the entire lifecycle of plastic waste, beginning with segregation at source and ending with recovery or safe disposal, the Indian Solid Waste Management Rules, 2016 mandate source segregation of waste into biodegradable, non-biodegradable, and domestic hazardous waste.¹²² Similarly, the Plastic Waste Management (PWM) Rules, 2016, and subsequent amendments in 2021 and 2022, specifically prohibit certain

¹¹⁹ Indian Institute of Science, *Plastic-to-Fuel Projects in India* (Indian Institute of Science 2021).

¹²⁰ United Nations Industrial Development Organization (UNIDO), *Plastic Waste Management in Sub-Saharan Africa* (UNIDO 2021) <www.unido.org/plastic-waste-africa> accessed 13 February 2025.

¹²¹ Chintan Environmental Research and Action Group, *Managing Plastic Waste in India* (Chintan 2021) <www.chintan-india.org/documents/research_and_reports/managing-plastic-waste-in-india.pdf> accessed 1 May 2025.

¹²² Ministry of Environment, Forest and Climate Change (MoEFCC), *Solid Waste Management Rules, 2016*, Gazette of India, Part II, s 3(ii), 8 April 2016.

SUP items such as plastic cutlery, earbuds with plastic sticks, and packaging films.¹²³ In addition, the regulatory framework in India uses the ISWM framework to align national and sub-national regulatory frameworks. For example, through the PWM Rules that mandate EPR, requiring producers and importers to collect and process plastic waste,¹²⁴ state governments and municipal bodies are empowered to enforce bans and levy fines for non-compliance.¹²⁵

In India, ISWM promotes financial mechanisms to ensure sustainable operations. EPR schemes then offer a market-based approaches to fund collection, transportation, and recycling of SUPs.¹²⁶ Additionally, to reduce SUP pollution, the Indian government encourages alternatives like jute, cloth, paper, and compostable polymers. In this manner, the ISWM framework supports reuse and recycling to close the material loop, in line with CE principles.¹²⁷ Likewise, technological interventions under ISWM in India, include the development of Material Recovery Facilities (MRFs), Waste-to-Energy (WtE) plants, and plastics recycling units. In furtherance of its ISWM framework, India has through the Central Pollution Control Board (CPCB) launched digital platforms to track EPR compliance and plastic waste flows.¹²⁸ Through awareness campaigns such as *Swachhata Hi Seva* and Plastic Free India form an essential part of the ISWM strategy. These campaigns aim to encourage behavioural change at the grassroots level and reduce SUP consumption.¹²⁹ In Nigeria, NESREA must

¹²³ Ministry of Environment, Forest and Climate Change (MoEFCC), *Plastic Waste Management (Amendment) Rules, 2021 and 2022*, Gazette Notifications <https://moef.gov.in/> accessed 1 May 2025.

¹²⁴ Central Pollution Control Board (CPCB), *Guidelines on Extended Producer Responsibility for Plastic Packaging under PWM Rules, 2016* (CPCB 2022) <https://cpcb.nic.in/> accessed 1 May 2025.

¹²⁵ Government of Maharashtra, *Action Plan for Ban on Single-Use Plastics* (Government of Maharashtra 2018) <www.maharashtra.gov.in/> accessed 1 May 2025.

¹²⁶ PwC India and FICCI, *Plastic Packaging: A Strategy for Extended Producer Responsibility in India* (2020) <www.ficci.in/> accessed 1 May 2025.

¹²⁷ NITI Aayog, *India's Strategy for Sustainable Plastics* (NITI Aayog 2021) <https://www.niti.gov.in/> accessed 1 May 2025.

¹²⁸ CPCB, *National Dashboard for EPR Compliance* (2023) <https://eprplastic.cpcb.gov.in/> accessed 1 May 2025.

¹²⁹ Swachh Bharat Mission, *Swachhata Hi Seva Campaign Reports* (2022) <https://swachhbharatmission.gov.in/> accessed 1 May 2025.

strengthen its monitoring mechanisms on SUPs, to ensure corporate compliance with plastic waste regulations.

Through a deliberate ISWM framework, that is tailored to suit the local, social, economic and cultural circumstances in Nigeria, the federal, state and local governments must also harmonise and integrate SUPs waste regulations to eliminate conflicts and overlapping constraints. In particular, the public, private sectors, manufactures and producers, informal SUPs waste stakeholders, civil society organisations as well as international donor organisations must be included. There must be inclusion of all stakeholders in any emergent and holistic ISWM regulatory framework, developed by the Federal Ministry of Environment, in conjunction with NESREA and state level institutions specifically targeted at tackling the challenges of SUPs.

3.2. CE Framework

The CE model is a fundamental framework for transforming Nigeria's linear 'take-make-dispose' SUPs waste system into a 'reduce-reuse-recycle' model.¹³⁰ The CE model seeks to eliminate waste generation by designing materials and products that can be continuously repurposed.¹³¹ This approach is particularly relevant in addressing Nigeria's SUPs waste crisis by promoting the use of biodegradable materials, encouraging SUPs recycling and fostering industrial symbiosis, which would create a Nigerian society where SUPs waste from one industry becomes raw material for another.¹³² Sweden, the Netherlands and Rwanda, have successfully integrated CE principles into their waste management policies, leading to significant reductions in plastic pollution.¹³³

While each operates within different political, social, cultural and economic contexts, they share key strategies that reflect circularity

¹³⁰ E MacArthur Foundation, 'What is a Circular Economy?' (MacArthur Foundation 2020) <https://ellenmacarthurfoundation.org/> accessed 13 February 2025.

¹³¹ EC, *A New Circular Economy Action Plan* (EC 2020) <https://ec.europa.eu/environment/circular-economy/> accessed 13 February 2025.

¹³² *ibid.*

¹³³ Republic of Rwanda, Law No. 17/2019.

principles. In dealing with SUPs waste, Sweden has adopted an approach that uses high-tech recycling, with a particular focus on producer responsibility anchored on both CE principles and EPR.¹³⁴ By so doing, Sweden mandates EPR schemes for packaging waste, which includes SUPs through a process that requires producers to finance the collection and recycling of plastic packaging.¹³⁵ Also, through the development of advanced recycling infrastructure, Sweden is now reported to have one of the highest plastic recovery rates in Europe.¹³⁶ It is a system that integrates mechanical and chemical recycling systems to extract value from plastic waste.¹³⁷

Furthermore, through a Deposit-Refund Systems (DRS), SUPs beverage containers are managed through DRS, thereby encouraging return and reuse.¹³⁸ In addition, to the above combined CE and EPR frameworks, Sweden has also developed a waste-to-energy regulatory technique as a transitional strategy, to tackle the challenges of non-recyclable SUPs that are incinerated in high-efficiency plants to produce energy, with strict emissions controls.¹³⁹ Indeed, Sweden's CE Action Plan 2020 appears to align with EU targets, in emphasising lifecycle design, resource efficiency, and innovation in alternatives.¹⁴⁰

In the Netherlands, the CE approach towards SUPs is through material innovation and application of the principle of zero waste targets. Thus, through a Plastic Pact NL,¹⁴¹ which is a voluntary agreement between government, industry, and civil society to make all plastic packaging

¹³⁴ Swedish Environmental Protection Agency (SEPA), *Waste Management in Sweden* (2022) <www.naturvardsverket.se> accessed 2 May 2025.

¹³⁵ *ibid.*

¹³⁶ *ibid.*

¹³⁷ European Environment Agency (EEA), *Plastics and the Environment: Sweden* (EEA, 2023) <www.eea.europa.eu> accessed 2 May 2025.

¹³⁸ Returpack, *Pantamera – Sweden's Deposit System* (Returpack 2023) <https://pantamera.nu> accessed 2 May 2025.

¹³⁹ Avfall Sverige, *Swedish Waste Management 2022* <www.avfallsverige.se> accessed 2 May 2025.

¹⁴⁰ Government of Sweden, *Circular Economy Strategy* (Government of Sweden, 2020) <www.regeringen.se> accessed 2 May 2025.

¹⁴¹ Ministry of Infrastructure and Water Management (Netherlands), *Plastic Pact NL* (Ministry of Infrastructure and Water Management, 2019) <www.rijksoverheid.nl> accessed 2 May 2025.

recyclable or reusable by 2025,¹⁴² there has been significant reduction in the usage of SUPs.¹⁴³ In fact, the Netherlands has placed a ban on free SUPs, as such, since 2016, plastic bags have been banned or taxed.¹⁴⁴ It has been reported that since July 2023, SUP items like cutlery and plates have been restricted under EU rules implemented nationally in the Netherlands.¹⁴⁵

There has also been a strategy of promoting the reuse of SUPs as well as laying strong emphasis on refill systems and reusable packaging, particularly in retail and food delivery sectors.¹⁴⁶ Indeed, the Netherlands' adherence to CE is epitomised by a commitment to promoting design of all kinds of plastic products for circularity.¹⁴⁷ Hence, Dutch regulations support eco-design standards and incentivise businesses to adopt closed-loop material cycles.¹⁴⁸ In a general context, the Netherlands' CE Programme 2016-2050 aims for a full CE by 2050, with a 50% reduction in the use of primary raw materials by 2030.¹⁴⁹

Similarly, in Rwanda, the CE regulatory strategy towards SUPs is anchored on: ban and behavioural change; strict border controls; public mobilisation; and governmental support for alternatives to SUPs.¹⁵⁰ To these ends, since 2008, Rwanda has enforced one of the strictest bans on plastic bags and later expanded this to other SUPs like straws and

¹⁴² *ibid.*

¹⁴³ *ibid.*

¹⁴⁴ European Commission (EC), Single-Use Plastics Directive Implementation – Netherlands (EC, 2023) <https://ec.europa.eu> accessed 2 May 2025.

¹⁴⁵ *ibid.*

¹⁴⁶ Ellen MacArthur Foundation, *Reusable Packaging Models in the Netherlands* (Ellen MacArthur Foundation, 2021) <https://ellenmacarthurfoundation.org> accessed 2 May 2025.

¹⁴⁷ *ibid.*

¹⁴⁸ Netherlands Enterprise Agency (NEA), *Design for Circularity Guidelines* (NEA, 2022) <www.rvo.nl> accessed 2 May 2025.

¹⁴⁹ Government of the Netherlands, *A Circular Economy in the Netherlands by 2050* (Government of the Netherlands, 2016) <www.government.nl> accessed 2 May 2025.

¹⁵⁰ M O Ogutu and others, 'Implementing Circular Economy and Sustainability Policies in Rwanda: Experiences of Rwandan Manufacturers with the Plastic Ban Policy' (2023) 4 *Frontiers in Sustainability* 1092107.

containers.¹⁵¹ Additionally, the customs authorities actively enforce the plastic ban, and travellers must surrender plastic bags upon entry.¹⁵² Through public mobilisation, monthly community clean-ups (*umuganda*) and national awareness campaigns helps in fostering citizen responsibility and plastic-free norms.¹⁵³ The government of Rwanda also encourages support for alternatives to SUPs through promoting and subsidising alternatives like paper, banana-leaf, and biodegradable packaging materials.¹⁵⁴ Rwanda's commitments to the ethos of CE was crystallised by the launching of its National CE Roadmap in 2021, targeting plastic reduction, local recycling capacity, and sustainable product design in alignment with its Green Growth and Climate Resilience Strategy.¹⁵⁵

However, in Nigeria, the adoption of CE remains slow due to weak regulations, limited investment in recycling technologies and low public awareness.¹⁵⁶ For Nigeria to transition to a CE, it must implement policies that promote plastic recycling industries, incentivise eco-friendly product designs and establish take-back schemes for plastic waste as practiced in Sweden, the Netherlands and Rwanda. Additionally, the experiences of these three countries, illustrates that PPP can facilitate investment in waste-to-energy projects, plastic upcycling and the development of biodegradable alternatives.

¹⁵¹ Ministry of Environment (Rwanda), *Law No. 17/2019 on the Prohibition of Plastic* <www.rw.embassy.gov> accessed 2 May 2025.

¹⁵² *ibid.*

¹⁵³ Rwanda Environment Management Authority (REMA), *Umuganda and Environmental Protection* (REMA, 2023) <www.rema.gov.rw> accessed 2 May 2025.

¹⁵⁴ Rwanda Green Fund (RGF), *Investing in Alternatives to Plastics* (RGF, 2022) <www.fonerwa.org> accessed 2 May 2025.

¹⁵⁵ Ministry of Environment (Rwanda), *National Circular Economy Roadmap* (Ministry of Environment, 2021) <https://environment.go.rw> accessed 2 May 2025.

¹⁵⁶ PG Meyer, 'Circular Economy and Plastic Waste Management: A Global Perspective' (2020) 32 *Journal of Environmental Policy* 211.

3.3. EPR Framework

The EPR framework holds manufacturers accountable for the entire lifecycle of their products, including post-consumer waste management.¹⁵⁷ This concept shifts the burden of waste disposal from consumers and governments to producers and importers of plastic products.¹⁵⁸ In Nigeria, where plastic packaging and SUPs dominate the market, implementing EPR policies could significantly reduce waste generation and encourage eco-friendly product innovation. As demonstrated above, EPR has been successfully implemented in Sweden in combination with its CE strategy, where companies are required to finance and manage the collection, recycling and disposal of their plastic products.¹⁵⁹

In Nigeria, the implementation of EPR remains weak, despite the existence of regulatory frameworks such as those emanating from the Federal Ministry of Environment and NESREA.¹⁶⁰ One reason for this weakness is that although Nigeria introduced EPR guidelines under the National Environmental (Plastic, Synthetic and Nylon) Regulations 2011, actual enforcement remains limited.¹⁶¹ Another reason is that the NESREA lacks adequate personnel, funding, and surveillance tools to monitor compliance by producers and importers.¹⁶² There is also no stand-alone SUPs legally binding EPR framework compelling producers to take back or recycle plastic packaging, especially for informal and small-scale

¹⁵⁷ Organisation for Economic Co-operation and Development (OECD), *Extended Producer Responsibility: A Guidance Manual for Governments* (OECD, 2016) <www.oecd.org/> accessed 13 February 2025.

¹⁵⁸ E Maitre-Ekern, 'Re-thinking Producer Responsibility for a Sustainable Circular Economy from Extended Producer Responsibility to Pre-market Producer Responsibility' (2021) 286 *Journal of Cleaner Production* 286 125454.

¹⁵⁹ K Chintan, 'Extended Producer Responsibility and the Future of Plastic Waste Management' (2022) 50 *Environmental Research Letters* 340.

¹⁶⁰ Federal Ministry of Environment (Nigeria), *National Policy on Plastic Waste Management in Nigeria* (Federal Ministry of Environment, 2020).

¹⁶¹ A Adeleke and I Kunlere, 'Implementation of the Extended Producer Responsibility (EPR) Policy in Nigeria: Towards Sustainable Business Practice' (2019) 2(1) *Nigerian Journal of Environment and Health*.

¹⁶² Environmental Law Research Institute (ELRI), *Challenges in the Implementation of Environmental Laws in Nigeria* (ELRI, 2020) <www.elri-ng.org> accessed 2 May 2025.

businesses.¹⁶³ This problem is compounded by low producer compliance and accountability, as many plastic manufacturers and importers operate outside the formal economy, making enforcement difficult.¹⁶⁴ Even registered companies often lack incentives to invest in collection or recycling systems, particularly when non-compliance carries few penalties or is rarely prosecuted.¹⁶⁵

In addition to the above reasons, unlike countries with successful EPR models like Sweden, Nigeria has no effective tracking or audit mechanism for producers of SUPs waste footprints, to effectively enforce EPR. Added, to this is the lack of infrastructure for collection and recycling, as Nigeria lacks adequate infrastructure to support large-scale waste segregation, collection, and recycling.¹⁶⁶ There are few material recovery facilities (MRFs), and most plastic recycling is done informally with limited quality control.¹⁶⁷ These inadequacies, limit the practicality of an EPR regulatory system where producers must rely on end-of-life recovery mechanisms to fulfil their EPR obligations.¹⁶⁸ Furthermore, significant portion of plastic waste collection and recycling in Nigeria is handled by the informal sector, which is not formally integrated into Nigeria's EPR schemes.¹⁶⁹ Thus, without structured integration, EPR frameworks fail to capture the actual volume of SUPs being recycled or reused, creating a disconnect between policy and reality.¹⁷⁰

There is also the challenge of low public awareness about the environmental impact of SUPs and the role of EPR in addressing it, this in

¹⁶³ *ibid.*

¹⁶⁴ C Chikelu, 'Extended Producer Responsibility in Nigeria: Legal Gaps and Prospects' (2022) 6(2) *Nigerian Journal of Environmental Law* 88.

¹⁶⁵ *ibid.*

¹⁶⁶ E Dumbili and L Henderson, 'The Challenge of Plastic Pollution in Nigeria' in T M Letcher (ed), *Plastic Waste and Recycling* (Elsevier Academic Press, 2020) 569-583.

¹⁶⁷ *ibid.*

¹⁶⁸ United Nations Industrial Development Organization (UNIDO), *Assessment of the Plastic Waste Management Value Chain in Nigeria* (UNIDO, 2021) <www.unido.org> accessed 2 May 2025.

¹⁶⁹ *ibid.*

¹⁷⁰ Heinrich Böll Foundation (HBF, *Plastic Waste and the Informal Sector in Lagos* (HBF 2020) <https://ng.boell.org> accessed 2 May 2025.

turn reduces pressure on producers from consumers to adopt sustainable practices or offer alternatives to SUPs.¹⁷¹ Likewise, there is also no formal mechanism for plastic credit trading or financial benefits for companies that fulfil EPR roles,¹⁷² as practiced in the Netherland and Sweden. Such absence of tax relief, subsidies, or recognition schemes discourages investment in CE practices, including product redesign and reusable packaging.¹⁷³

In Nigeria's federal system, waste regulation responsibilities are divided across federal, state, and local governments, with poor coordination. This fragmentation undermines the development of a unified EPR system, especially in urban centres like Lagos where plastic pollution is most severe.¹⁷⁴ Strengthening Nigeria's EPR policy framework by imposing plastic levies, mandating producer-funded recycling programs and enforcing eco-design standards could drive substantial improvements in SUPs waste management.¹⁷⁵ However, India for example, has successfully integrated its informal waste pickers into its CE model, particularly through EPR programs which Nigeria can learn from.¹⁷⁶

There are many lessons that Nigeria can also glean from the EU, which is a global leader in combining CE principles with EPR policies, particularly in the context of SUPs waste regulation. The EU introduced the CE Action Plan (CEAP) 2020, which aims to reduce plastic waste, increase recycling rates and promote eco-design principles.¹⁷⁷ One key component of the CEAP is the EPR framework included the plan, which mandates plastic manufacturers and retailers to take responsibility for the post-consumer disposal of their products.¹⁷⁸ Some of the key policies under the

¹⁷¹ *ibid.*

¹⁷² *ibid.*

¹⁷³ *ibid.*

¹⁷⁴ Dumbili and Henderson (n 166).

¹⁷⁵ *ibid.*

¹⁷⁶ Indian Ministry of Environment, *Plastic Waste Management Rules* (Indian Ministry of Environment 2016).

¹⁷⁷ EC (n 144).

¹⁷⁸ Organization for Economic Co-operation and Development (OECD), *Extended Producer Responsibility: A Guidance Manual for Governments* (OECD 2001). <https://doi.org/10.1787/9789264189867-en>.

EU's framework include: SUPs Directive 2019, which prohibits items such as plastic straws, cutlery and Styrofoam packaging;¹⁷⁹ Plastic Packaging Levy 2021, which requires producers to pay taxes on non-recycled plastic packaging;¹⁸⁰ and Deposit Refund Systems (DRS), which encourages consumers to return plastic bottles for financial incentives.¹⁸¹

These are lessons that Nigeria can glean from the above EU initiatives including: enacting and enforcing stand-alone EPR laws, in this context Nigeria should enact new EPR laws to ensure that SUPs manufacturers contribute to waste collection and recycling programs, as a matter of legally binding obligations. Furthermore, government-backed recycling targets should be created so that like the EU, Nigeria could establish national recycling quotas to increase its plastic recovery rate. More so, there is a need for establishing a Deposit-Return Schemes, through the implementation of plastic buy-back programs which can encourage waste collection and reduce littering. In this manner, Nigeria will be using EPR principles to enhance a CE in tackling the menace of SUPs.

4. STRENGTHENING NIGERIA'S REGULATORY FRAMEWORK

Nigeria has several regulatory policies addressing plastic waste, such as the NPPW 2020, the National Environmental (Domestic and Industrial Plastic, Rubber and Foam Sector) Regulations 2011,¹⁸² and the EPR framework.¹⁸³ However, poor enforcement and regulatory gaps have limited their effectiveness. To strengthen Nigeria's regulatory framework, through creating mandatory compliance obligations with EPR regulations, existing waste regulations need to be amended and the government should enact stand-alone EPR legislations, requiring SUPs producers to finance collection, recycling and disposal programs.¹⁸⁴ There should also be a legislative national ban on harmful SUPs, as against the

¹⁷⁹ EU Directive 2019/904-*Single Use Plastics and Labelling Requirements* 2019.

¹⁸⁰ EC (n 144).

¹⁸¹ OECD (n 178).

¹⁸² National Environmental (Domestic and Industrial Plastic, Rubber and Foam Sector) Regulations 2011 S. I. No., 17 2011.

¹⁸³ *ibid* s 11(1) and schedule XIII.

¹⁸⁴ OECD) (n 178).

current soft-law approach, this can be achieved through phasing out of non-biodegradable plastic bags, Styrofoam packaging and micro-plastics, similar to Rwanda's approach.¹⁸⁵

It is the suggestion herein that Nigeria needs to establish a National Plastic Waste Registry under the supervision of NESREA. Such a centralised system would require manufacturers to make periodic reports of SUPs production, recovery rates and compliance with recycling targets, in manner like that of the EU.¹⁸⁶ Such registries should also be replicated at state and local government levels. Additionally, Nigeria must as a matter of necessity increase penalties for non-compliance with extant regulations of SUPs waste, by imposing higher fines and stricter sanctions on industries that fail to meet waste reduction and recycling obligations.

Nigeria should also enact a National Plastic Waste Control Act, which should specifically define and regulate SUPs, impose bans or restrictions and penalties for violations, as well as empower enforcement agencies to prosecute offenders. Although this strategy has been criticised by some scholars as counter-productive,¹⁸⁷ it is argued that whatever the shortcomings with such punitive legal approaches, such shortcomings can be mitigated using positive mechanisms such as providing financial and credit-based incentives for compliance. Nigeria should also domesticate all relevant international conventions which it has signed and ratified such as, the Basel Convention on the Control of the Transboundary Movement of Hazardous Wastes and their Disposal 1989 and the Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Waste within Africa 1991. This will ensure that Nigeria's international commitments on plastic waste are codified into national law for enforceability. To further strengthen Nigeria's regulatory regime on SUPs some practical recommendations are proffered in sub-section 5.1-5.4 below.

¹⁸⁵ Republic of Rwanda Law (n 151).

¹⁸⁶ EU Directive (n 179).

¹⁸⁷ N Nwafor and T R Walker, 'Plastic Bags Prohibition Bill: A Developing Story of Crass Legalism Aiming to Reduce Plastic Marine Pollution in Nigeria' (2020) 120 *Marine Policy* 104160.

4.1. Expanding Recycling Infrastructure

As Nigeria's general plastic recycling rate remains below 12%, which is far lower than the global average of 30%,¹⁸⁸ there is an urgent need to improve plastic waste collection, sorting and processing, SUPs inclusive. Consequently, Nigeria must invest in recycling infrastructure through the following initiatives: developing plastic recycling hubs, by establishing modern recycling plants in major cities like Lagos, Abuja, Kano and Port Harcourt; introducing SUPs buy-back centres, which can be achieved by incentivising collection through allowing citizens to exchange SUP wastes for cash or goods; encouraging waste-to-energy technologies, through investments in plastic-to-fuel and bio-energy projects, following India's model; and promoting research into biodegradable alternatives, this can be achieved by partnering with universities, research institutes and industries to develop eco-friendly materials. In addition to these, Nigeria needs to adopt a PPP approach to leverage finances for funding large-scale SUPs waste recovery and recycling projects. Equally important in this context will be the introduction of tax incentives, which should be provided to companies investing in SUPs recycling technologies.

4.2. Formalising the Informal Waste Sector

It has been shown that approximately 80% of plastic (SUPs inclusive) waste collection in Nigeria is managed by informal waste pickers.¹⁸⁹ Integrating them into the formal sector will enhance efficiency and job security. To achieve this, there must be legal recognition for waste pickers and there should be in existence a National Waste Pickers Association to advocate for wages, working conditions and benefits.¹⁹⁰ Similarly, the creation of SUPs waste collection cooperatives will be helpful in providing financial security to workers in the SUPs waste sector. This can then be further supported by government-backed schemes where waste pickers can access micro-finance and training. In addition, the use of technology such as implementing digital tracking systems, like development of SUP

¹⁸⁸ LAWMA (n 58).

¹⁸⁹ SWaCH (n 56).

¹⁹⁰ Federal Ministry of Labour and Employment, *Informal Sector Policies in Nigeria* (Federal Ministry of Labour and Employment 2023).

waste collection apps to connect pickers with buyers, recyclers and municipal authorities will improve the efficiency of sustainable SUPs waste regulation in Nigeria. Another helpful strategy of implementation is that the Ministry of Environment should work with NGOs to train and equip waste pickers with protective gear and collection tools. At the levels of states and local governments, registers of waste pickers should be created, and they should be provided with identification cards, to enhance their access to financial and social security benefits.

4.3. Engaging the Private Sector and Investors

The private sector plays a crucial role in building a CE. Companies like Coca-Cola, Nestlé and Unilever Nigeria have already introduced plastic recovery programs.¹⁹¹ However, more corporate participation is needed through enforcing Corporate Social Responsibility (CSR) recycling targets, that require large manufacturers to recover a percentage of their SUPs waste annually. In addition, government should offer tax breaks for eco-friendly businesses, through reducing corporate taxes for companies that invest in sustainable packaging and recycling initiatives. It is strongly recommended that the Nigerian government at the federal level should establish Green Investment Funds as a government-backed fund to support start-ups focused on waste-to-value innovation. In this context, the Nigerian Investment Promotion Commission (NIPC) should provide funding incentives for eco-businesses, and the government should introduce ‘plastic credits’, similar to carbon credits, allowing companies to trade SUPs waste reduction efforts, following the example of the EU’s DRS initiative.

4.4. Promoting Public Awareness and Behavioural Change

The success of *Umuganda*, in Rwanda demonstrates that public participation is essential in reducing SUPs waste. The idea of keeping in touch with public behaviour in formulating policies in relation to the use

¹⁹¹ Coca-Cola Nigeria, *Sustainable Packaging Initiatives* (Coca-Cola Nigeria 2023).

of plastics generally has been highlighted by scholars.¹⁹² As many Nigerians lack awareness about waste segregation, recycling and environmental impacts of indiscriminate SUPs waste disposal,¹⁹³ there is the necessity of encouraging responsible SUPs disposal through adopting the following implementation strategies: introduction of nationwide recycling education and campaigns by engaging schools, religious institutions, and communities in waste literacy programs; enacting and implementing waste segregation laws that mandate households and businesses to separate SUPs from other waste; launching a ‘SUPs-Free Nigeria’ campaign, through government-led movement promoting reusable alternatives and sustainable consumer habits; and leveraging on digital platforms, like using social media, mobile apps and SMS reminders to inform citizens about waste collection schedules and recycling incentives.

5. CONCLUSION

Nigeria faces a growing SUPs waste crisis, exacerbated by urbanisation, poor waste management infrastructure and limited recycling capacity. Existing laws, policies, enforcement gaps and lack of investment have hindered progress towards a CE. It has been argued that lessons from the EU’s EPR model, Rwanda’s strict plastic ban and India’s integration approach, demonstrate that a holistic, multi-stakeholder approach is essential. This paper has outlined key strategies for Nigeria to transition towards a CE for SUPs, including: strengthening regulatory enforcement through EPR compliance, banning SUPs and imposing penalties; expanding recycling infrastructure by investing in waste-to-energy projects and plastic recovery hubs; integrating the informal waste sector to improve waste collection efficiency and job security; engaging the private sector through PPP; and raising public awareness. If effectively implemented, these pathways will significantly reduce SUPs pollution, create green jobs and enhance environmental sustainability in Nigeria.

¹⁹² C E Adibe and others, ‘Understanding the Psychology and Legal Perspective of Plastic Dependency in Nigeria’ (2024) 43(3) *Current Psychology* 2630.

¹⁹³ C Eze, ‘Public Awareness and Plastic Waste Management in Nigeria’ (2021) 45 *African Journal of Environmental Studies* 119.

Indeed, a CE is not just an environmental necessity but an economic imperative for Nigeria.